

<b>Notice of Allowability</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	09/972,805	CHANDLER ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Ashwin Mehta	1638	

-- **The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**  
 All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to papers filed March 30, 2005.
2. ☒ The allowed claim(s) is/are 29-33,81,82,84,86,88,89,91-97,121,122,124,126,128,129,131-137,341,342,344,346,348,349,351-357,381,382,384,386 and 388-396.
3. ☒ The drawings filed on 05 October 2001 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☐ All    b) ☐ Some\*    c) ☐ None    of the:
    1. ☐ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
  6. ☐ CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
    - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
      - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
    - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying Indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

- |   |  |
|---|--|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892)  | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)                                  |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                | 6. <input checked="" type="checkbox"/> Interview Summary (PTO-413),<br>Paper No./Mail Date <u>attached</u> . |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),<br>Paper No./Mail Date _____ | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment  |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br>of Biological Material          | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance                         |
|   | 9. <input type="checkbox"/> Other _____  |

***Election/Restriction***

1. Applicants request inclusion of claims directed to corn mutant *mop1-1*, because the elected group is drawn towards mutant corn plants wherein the mutation causes an increase in transgene expression, and because *mop1-1* is such a mutant corn plant (response filed March 30, 2005, paragraph bridging pages 24-25). Mutant corn plant *mop1-1* was recited in a non-elected Group III. However, as it would not be an additional serious burden, the claims directed towards this plant will be rejoined with the elected group. Note that where a restriction requirement is withdrawn, the provisions of 35 U.S.C. 121 are no longer applicable. In re Ziegler, 44 F.2d 1211, 1215, 170 USPQ 129, 131-132 (CCPA 1971). See also MPEP 804.01.

***Objections and Rejections***

2. The objections to the specification are withdrawn in light of the amendments.
3. The objection to claims 87, 90, 127, 130, 207, 210, 347, and 350 is withdrawn, in light of the claim amendments or cancellations.
4. The rejection of claims 29-34, 83, 85, 87-90, 91-93, 95-99, 125, 127-134, 138-139, 212-213, 345, 347-354, 358, and 359 under 35 U.S.C. 112, second paragraph is withdrawn in light of the claim amendments or cancellations.
5. The rejections of claims 29-34, 81-99, 121-139, and 341-359 under 35 U.S.C. 112, first paragraph, are withdrawn in light of Applicant's amendments and the amendments below.

Art Unit: 1638

6. The rejection of claims 341-346, 348, and 351-359 under 35 U.S.C. 103(a) is withdrawn in light of the claim amendments.

*Examiner's Amendment*

7. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Otis Littlefield on June 24, 2005.

The application has been amended as follows:

In the claims:

29. A mutant[, transgenic] mop1-1, Mop2-1, rmr1-1, or rmr2-1 corn plant comprising a transgene, wherein the transgene is hypomethylated compared to the methylation state of the transgene in a non-mutant transgenic corn plant and the expression of said transgene is at least two-fold higher as compared to the expression of the transgene in [a] said non-mutant transgenic corn plant.

In claim 30, line 4: the article "a" was replaced with --said--.

In claim 31, line 5, the article "a" was replaced with --said--.

Art Unit: 1638

Claim 34 was cancelled.

81. A corn seed genotypically designated *rmr2-1* having ATCC Accession Number PTA-3956, further comprising a transgene wherein the transgene is hypomethylated compared to the methylation state of the transgene in a non-mutant corn seed [not comprising a *rmr2-1* mutation] and the expression of said transgene is at least two-fold higher as compared to the expression of the transgene in [a] said non-mutant corn seed [not comprising the *rmr2-1* mutation].

Claims 83, 85, and 87 were cancelled.

In claim 88, line 5, the article, “a” was replaced with --said non-mutant--, and the recitation, “not comprising the *rmr2-1* mutation” was deleted.

In claim 89, line 4, the article, “a” was replaced with --said non-mutant--, and the recitation, “not comprising the *rmr2-1* mutation” was deleted.

In claim 91, line 7, the recitation, --non-mutant corn-- was inserted before “cells” and the recitation, “not comprising the *rmr2-1* mutation” was deleted.

Art Unit: 1638

94. A corn plant regenerated from the tissue culture of claim 91, wherein said corn plant has all of the genotypic, physiological and morphological characteristics of the corn plant designated *rmr2-1*, and comprises said hypomethylated transgene [a sample of the seed of said corn plant designated *rmr2-1* having been deposited under ATCC Accession Number PTA-3956].

95. A process of producing corn seed comprising the *rmr2-1* mutation, comprising self-pollinating a plant genotypically designated *rmr2-1* and further comprising a transgene or crossing a first parent corn plant with a second parent corn plant, wherein said first or second corn plant is the corn plant designated *rmr2-1* and further comprising the transgene, a sample of the seed of said corn plant designated *rmr2-1* having been deposited under ATCC Accession No. PTA- 3956, wherein said seed comprising the *rmr2-1* mutation produced from the cross comprises the transgene, wherein the transgene is hypomethylated compared to the methylation state of the transgene in a non-mutant corn seed [not comprising a *rmr2-1* mutation] and the expression of said transgene is at least two-fold higher as compared to the expression of the transgene in [a] said non-mutant corn seed [not comprising the *rmr2-1* mutation].

Claims 98 and 99 were cancelled.

121. A corn seed genotypically designated *Mop2-1* having ATCC Accession Number PTA-4030, further comprising a transgene wherein the transgene is hypomethylated compared to the methylation state of the transgene in a non-mutant corn seed [not comprising a *Mop2-1*

Art Unit: 1638

mutation] and the expression of said transgene is at least two-fold higher as compared to the expression of the transgene in [a] said non-mutant corn seed [not comprising the *Mop2-1* mutation].

Claims 123, 125, and 127 were cancelled.

In claim 128, line 5, the article, "a" was replaced with --said non-mutant--, and in lines 5-6, the recitation, "not comprising the *Mop2-1* mutation" was deleted.

In claim 129, line 4, the article, "a" was replaced with --said non-mutant--, and in line 5, the recitation, "not comprising the *Mop2-1* mutation" was deleted.

In claim 131, line 7, the recitation, --non-mutant corn-- was inserted before "cells" and in lines 7-8, the recitation, "not comprising the *Mop2-1* mutation" was deleted.

134. A corn plant regenerated from the tissue culture of claim 131, wherein said corn plant has all of the genotypic, physiological and morphological characteristics of the corn plant designated *Mop2-1*, and comprises said hypomethylated transgene [a sample of the seed of said corn plant designated *Mop2-1* having been deposited under ATCC Accession Number PTA-4030].

Art Unit: 1638

135. A process of producing corn seed comprising the *Mop2-1* mutation, comprising self-pollinating a plant genotypically designated *Mop2-1* and further comprising a transgene or crossing a first parent corn plant with a second parent corn plant, wherein said first or second corn plant is the corn plant designated *Mop2-1*, and further comprising a transgene, a sample of the seed of said corn plant designated *Mop2-1* having been deposited under ATCC Accession No. PTA- 4030, wherein said seed comprising the *Mop2-1* mutation produced from the cross comprises the transgene, wherein the transgene is hypomethylated compared to the methylation state of the transgene in a non-mutant corn seed [not comprising a *Mop2-1* mutation] and the expression of said transgene is at least two-fold higher as compared to the expression of the transgene in [a] said non-mutant corn seed [not comprising the *Mop2-1* mutation].

Claims 138 and 139 were cancelled.

341. A corn seed genotypically designated *rmr1-1* having ATCC Accession Number PTA-3965, further comprising a transgene wherein the transgene is hypomethylated compared to the methylation state of the transgene in a non-mutant corn seed [not comprising a *rmr1-1* mutation] and the expression of said transgene is at least two-fold higher as compared to the expression of the transgene in [a] said non-mutant corn seed [not comprising the *rmr1-1* mutation].

Claims 343, 345, and 347 were cancelled.

Art Unit: 1638

In claim 348, line 5, the article, “a” was replaced with --said non-mutant--, and the recitation, “not comprising the *rmr1-1* mutation” was deleted.

In claim 349, line 4, the article, “a” was replaced with --said non-mutant--, and the recitation, “not comprising the *rmr1-1* mutation” was deleted.

In claim 351, line 7, the recitation, --non-mutant corn-- was inserted before “cells” and the recitation, “not comprising the *rmr1-1* mutation” was deleted.

354. A corn plant regenerated from the tissue culture of claim 351, wherein said corn plant has all of the genotypic, physiological and morphological characteristics of the corn plant designated *rmr1-1*, and comprises said hypomethylated transgene [a sample of the seed of said corn plant designated *rmr1-1* having been deposited under ATCC Accession Number PTA-3965].

355. A process of producing corn seed comprising the *rmr1-1* mutation, comprising self-pollinating a plant genotypically designated *rmr1-1* and further comprising a transgene or crossing a first parent corn plant with a second parent corn plant, wherein said first or second corn plant is the corn plant designated *rmr1-1*, and further comprising a transgene, a sample of the seed of said corn plant designated *rmr1-1* having been deposited under ATCC Accession No. PTA- 3965, wherein said seed comprising the *rmr1-1* mutation produced from the cross comprises the transgene, wherein the transgene is hypomethylated compared to the methylation



Art Unit: 1638

state of the transgene in a non-mutant corn seed [not comprising a *rmr1-1* mutation] and the expression of said transgene is at least two-fold higher as compared to the expression of the transgene in [a] said non-mutant corn seed [not comprising the *rmr1-1* mutation].

Claims 358 and 359 were cancelled.

381. A corn seed genotypically designated *mop1-1* having ATCC Accession Number PTA3828, further comprising a transgene wherein the transgene is hypomethylated compared to the methylation state of the transgene in a non-mutant corn seed [not comprising a *mop1-1* mutation] and the expression of said transgene is at least two-fold higher as compared to the expression of the transgene in [a] said non-mutant corn seed [not comprising the *mop1-1* mutation].

Claims 383, 385, and 387 were cancelled.

In claim 388, line 5, the article, "a" was replaced with --said non-mutant--, and the recitation, "not comprising the *mop1-1* mutation" was deleted.

In claim 389, line 4, the article, "a" was replaced with --said non-mutant--, and the recitation, "not comprising the *mop1-1* mutation" was deleted.

Art Unit: 1638

In claim 390, line 6, the recitation, --non-mutant corn-- was inserted before “cells” and in line 7 the recitation, “not comprising the *mop1-1* mutation” was deleted.

393. A corn plant regenerated from the tissue culture of claim 390, wherein said corn plant has all of the physiological and morphological characteristics of the corn plant designated *mop1-1*, and comprises said hypomethylated transgene [a sample of the seed of said corn plant designated *mop1-1* having been deposited under ATCC Accession Number PTA3828].

394. A process of producing corn seed comprising the *mop1-1* mutation, comprising self-pollinating a plant genotypically designated *mop1-1* and further comprising a transgene or crossing a first parent corn plant with a second parent corn plant, wherein said first or second corn plant is the corn plant designated *mop1-1* and further comprising the transgene, a sample of the seed of said corn plant designated *mop1-1* having been deposited under ATCC Accession No. PTA3828, wherein said seed comprising the *mop1-1* mutation produced from the cross comprises the transgene, wherein the transgene is hypomethylated compared to the methylation state of the transgene in a non-mutant corn seed [not comprising a *mop1-1* mutation] and the expression of said transgene is at least two-fold higher as compared to the expression of the transgene in [a] said non-mutant corn seed [not comprising the *mop1-1* mutation].

Claims 397 and 398 were cancelled.

Art Unit: 1638

8. Claims 29-33, 81, 82, 84, 86, 88, 89, 91-97, 121, 122, 124, 126, 128, 129, 131-137, 341, 342, 344, 346, 348, 349, 351-357, 381, 382, 384, 386, and 388-396 are allowed.

The following is an examiner's statement of reasons for allowance: Applicants have characterized the paramutagenic alleles of mutant corn plants designated *Mop2-1*, *rmr1-1*, *rmr2-1*, and *mop1-1*, and have determined that the mutations reduce the methylation of a "B" transgene and *Mu1* transposable elements when present in the mutant plants, compared to the methylation of the transgenic material when present in corn plants that do not have the aforementioned mutations. The hypomethylated state of the transgenic material led to a higher expression level. Chandler et al. (Plant Mol. Biol., 2000, Vol. 43, pages 121-145) teach mutant *rmr1-1* corn plants. However, the prior art fails to teach or fairly suggest transgenic *rmr1-1* plants, or that transgenes would be hypomethylated and therefore expressed at higher levels in *Mop2-1*, *rmr1-1*, *rmr2-1*, and *mop1-1* corn plants compared to their methylation and expression level non-mutant corn plants. Non-transgenic *Mop2-1*, *rmr1-1*, *rmr2-1*, and *mop1-1* corn seeds have been deposited with the ATCC, following the deposit rules of 37 CFR 1.821-1.825.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

#### **Contact Information**


Any inquiry concerning this or earlier communications from the Examiner should be directed to Ashwin Mehta, whose telephone number is 571-272-0803. The Examiner can normally be reached from 8:00 A.M to 5:30 P.M. If attempts to reach the Examiner by telephone

Art Unit: 1638

are unsuccessful, the Examiner's supervisor, Amy Nelson, can be reached at 571-272-0804. The fax phone numbers for the organization where this application or proceeding is assigned are 571-273-8300. Patent applicants with problems or questions regarding electronic images that can be viewed in the Patent Application Information Retrieval system (PAIR) can now contact the USPTO's Patent Electronic Business Center (Patent EBC) for assistance. Representatives are available to answer your questions daily from 6 am to midnight (EST). The toll free number is (866) 217-9197. When calling please have your application serial or patent number, the type of document you are having an image problem with, the number of pages and the specific nature of the problem. The Patent Electronic Business Center will notify applicants of the resolution of the problem within 5-7 business days. Applicants can also check PAIR to confirm that the problem has been corrected. The USPTO's Patent Electronic Business Center is a complete service center supporting all patent business on the Internet. The USPTO's PAIR system provides Internet-based access to patent application status and history information. It also enables applicants to view the scanned images of their own application file folder(s) as well as general patent information available to the public. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>.

For all other customer support, please call the USPTO Call Center (UCC) at 800-786-9199.

June 24, 2005



Ashwin D. Mehta, Ph.D.  
Primary Examiner  
Art Unit 1638